INTERNET OF THINGS TECHNOLOGY

Machinery Monitoring System / Maintenance Support System

ClassNK CMAXS

4 benefits of CMAXS

1. Monitoring of Machinery Condition

- Early detection of machine abnormality and reduction of accidents through a next-gen monitoring System
- Support daily maintenance work onboard

2. Integration of Monitoring Systems

- Monitor M/E, G/E and auxiliary machines all at once (Initial installation costs can be reduced)

3. Information Sharing on Cloud Server

- Unitarily manage machinery condition of your fleet
- Share monitoring information with vessels/shipping companies/manufacturers

4. Comprehensive Support

- CMAXS alliance partners* provide technical support service to clients

---

- ClassNK CMAXS is a general term for comprehensive software developed by ClassNK in association with various M/E, G/E and auxiliary manufacturers.

- CMAXS makes "BIG DATA" gathered from vessels more valuable by combining "IoT", "Machine Learning" and a "Diagnostic System".

- ClassNK won the Lloyd's List Intelligence Big Data Award for its condition based monitoring suite ClassNK CMAXS at the 19th Lloyd's List Asia Awards in Singapore.

 *CMAXS provides its service in cooperation with M/E, G/E and auxiliary manufacturers
 Please refer the reverse side for CMAXS alliance partners

Machinery Monitoring System / Maintenance Support System

＜Procedure of Condition Monitoring/Diagnostic＞

Measurement
"Data Collection" from sensors

Anomaly Detection
"Condition Monitoring/Diagnostic" catches slight condition discrepancies

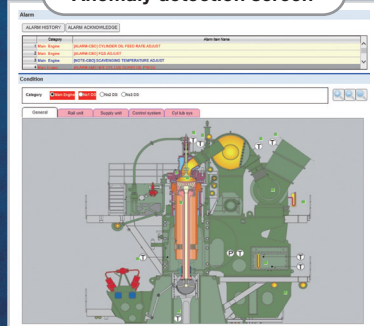**Troubleshooting**
Identifies possible cause and repair methods

Appropriate Maintenance
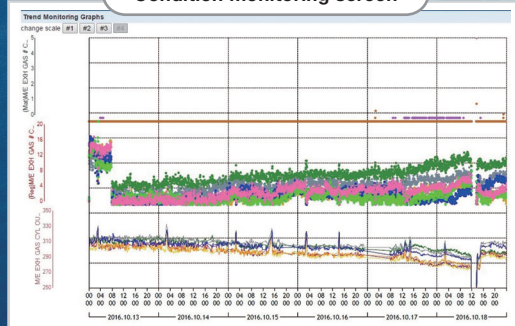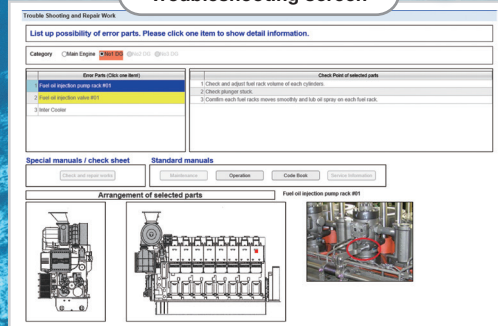Prevents problems through appropriate "Preventive Maintenance"

User's Value → **Larger**

Anomaly detection screen

Condition monitoring screen

Troubleshooting screen

＜Benefits＞

- Diagnostic method combining manufacturer know-how and machine-learning algorithm
- Early detection of machine abnormality and reduction of accidents by condition monitoring/diagnostics
- Appropriate automatic troubleshooting system and identification of possible cause and repair work
- Optimum preventive maintenance based on actual conditions
- Monitor M/E, G/E and auxiliary machines all at once through corporate operation with alliance partners
- Information sharing between ship and office through a cloud server
- Appropriate remote support from alliance partners to ships in distress
- Framework for service with continually updated diagnostic parameters, content and functions

Others Systems

Planned Maintenance System

- Makes maintenance scheduling and reporting simple
- Information sharing between ship and office
- Supports applying element 4 of TMSA

Spare Parts Inventory Control System

- Shortage of spare parts can be immediately identified
- Ship spare parts inventory can be precisely maintained
- Ship managers can easily request and compare quotes from different suppliers

Abstract Log Control System

- Tool for managing the deck and engine's abstract log data
- Graph of power curve, FO consumption etc. can be plotted using past data
- Supports applying IMO-DCS and EU-MRV

Alliance Partners

MITSUI E&S — MITSUI E&S Co., Ltd.

MITSUI E&S — Mitsui E&S DU Co., Ltd.

DAIHATSU InfiniEarth

HZME — Hitachi Zosen Marine Engine Co., Ltd.

IHI Power Systems

IMC 株式会社 I M C

For more information about this service, please contact us at: